

Enhance infant nutrition with prebiotics
BENEO's portfolio extension of gut health solutions: 2'-FL

Nutrition in early life

Breastfeeding is universally recognised as the best source of nutrition for babies, providing not only the ideal amount of nutrients but also essential bioactive prebiotic components – Human Milk Oligosaccharides (HMOs).

HMOs are the third-largest component of breast milk after lipids and lactose, with more than 200 different structures identified. They are the first prebiotics consumed in life and are associated with supporting healthy infant development. These naturally occurring oligosaccharides in breast milk support a range of benefits such as nurturing the microbiota, improving gut and immune health, and in the longer-term metabolic health and brain development.

beneo
connecting nutrition and health

Essential health benefits of HMOs from breast milk

Supporting the colonisation of the gut with beneficial bacteria

Improving bowel function by softening stools

Supporting maturation of the gut and immune system

Supporting brain development and cognitive function

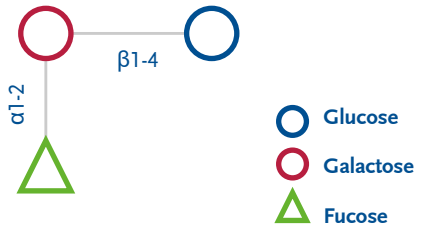
Introducing 2'-FL

Among the identified HMOs in breast milk, 2'-FL is one of the most abundantly present in human milk, accounting for up to 30% of all HMOs or about 3 g/L on average. 2'-FL is a trisaccharide and belongs to the group of fucosylated HMOs.

In addition to the generally known microbiota-mediated effects, individual HMOs like 2'-FL stand out for their positive influence on the immune system. Along with the indirect, microbiota-mediated effects, they may also act directly by preventing viral pathogens from adhering to the gut lining. This could help to reduce the incidence of gastrointestinal infections.

2'-FL helps to bridge the prebiotic gap making it a valuable ingredient for infant formula manufacturers aiming to closely replicate breast milk benefits.

2'-Fucosyllactose (2'-FL) building blocks







BENEO has joined forces with WACKER to offer 2'-FL. Its partner WACKER is a European expert in biotechnology solutions for the food and pharma industries and produces 2'-FL with precision fermentation. This partnership builds on BENEO's strong expertise in enriching infant nutrition with functional ingredients and reinforces the commitment to advancing infant nutrition. With the portfolio extension of 2'-FL, we continue to support the evolving nutritional needs of infants, fostering healthy development in early childhood and bringing infant formula closer to breast milk.

The potential synergistic effects between 2'-FL and prebiotics from chicory

The bioactive ingredients together, 2'-FL and BENEO's prebiotics from chicory, bring infant formula closer to breast milk, both in terms of composition and functionality. This combined enrichment not only mimics the prebiotic benefits of breast milk but also provides a new level of support for infant health, bridging the gap between breastfed and formula-fed infants like never before.

Synergistic effects can be anticipated when 2'-FL and prebiotics from chicory join forces. Each ingredient offers valuable health effects, however when combined, their benefits can become even more impactful."

The importance of prebiotics in early childhood



Prebiotics support the development of microbiota, immunity and beyond with short- and long-term health benefits



Human milk oligosaccharides are the natural prebiotic component in breast milk

But what to do when breastfeeding is not possible?



Prebiotic solutions to bring formulas closer to compositional and functional benefits of breast milk

Prebiotics from chicory

- Inulin and oligofructose (FOS) are proven prebiotics according to ISAPP
- Backed by strong scientific evidence including studies in infants & children
- Strong foundation for beneficial bacterial colonisation of the gut

ESTABLISHED SOLUTION WITH LONG HISTORY OF USE

1 + 1 = 3

2'-Fucosyllactose (2'-FL)

- 2'-FL as nature-identical HMO and the most abundant in breast milk
- Complementary stimulation of the developing gut microbiota
- Microbiota-mediated indirect effects, but also direct physiological effects

HMO

Combination as premium innovative solution with potential synergistic effects:

Higher variety of beneficial bacteria in the gut and more favourable and complex fermentation pattern[1]

Optimising stooling pattern towards gentle and soft stools for the child's digestive well-being

Immune modulation and support on a broad level via different direct and indirect mechanisms

Cognitive development via gut-brain axis as field of emerging science

Highly relevant for infants, toddlers and young children

Infant formula | **Follow-on formula** | **Growing-up milk**

[1] *Pudenz et al. (2025) ESPGHAN 57th Annual Meeting Abstracts. JPGN Reports 6(S1):S1610*

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